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Exploring Organic Food Purchase Intention in Bangladesh: An Evaluation by Using the Theory of Planned Behavior

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Abstract: The recent growth of organic food sector has contributed to the growth of consumer research in this area. The rise in consumer research related to organic food is particularly evident in the Western hemisphere. Past scientific studies provided evidence that organic foods confer multiple promises to future generations. Some of the promises were sustainable food production, food security, food safety, nutrition and reduction of green-house gas impacts, etc. Despite all these promises, research under Asian context may still be considered low. Specifically under Bangladesh context, only a few investigations could be traced that actually examined consumer behavior under a well-grounded theoretical framework. The current study employs an empirical approach to achieve its two-fold objectives. First, it looks into the fundamental determinants of organic food purchase intention and their underlying relationships by using the theory of planned behavior. Consequential to the first objective, the study is also aimed at inferring whether the theoretical framework may be adopted as the baseline model in future studies as well. It seems that this might be a pioneering study that would be examining the aforesaid theoretical framework under Bangladesh context. The empirical findings indicate that attitude and subjective norm are significant determinants of purchase intention where as perceived behavioral control is not significant. It is also found that the theory of planned behavior may be applied in modeling consumers' purchase intention since the statistical model fit is satisfactory.

Key words: Organic foods, purchase intention, organic foods in Bangladesh, attitude towards organic food, the Theory of Planned Behavior (TPB)

INTRODUCTION

Organic food means foods produced by farmers by using renewable resources and protecting ecological assets to enhance sustainability and prevent environmental degradation. Organic meat, eggs and dairy items have to be derived from animals that are not tainted with antibiotics or hormones in the process. In addition, conventional pesticides, synthetic fertilizers or sewage sludge, bioengineering or ionizing radiation may not be used in producing organic foods. Under the current global context of increasing eco-awareness of consumers, the market trend of organic foods is showing a global rise. BCC Research revealed in a report that the global organic food and beverage market was worth about \$71.2 billion in 2012 and is projected to hit \$161.5 billion by the year 2018 with a 5 year Compound Annual Growth Rate (CAGR) of 15%.

However, despite this growth projection, the market is facing plenty of challenges at the consumer end. It is reported that conventional food still enjoys the biggest share of the global food consumption pie. United States Department of Agriculture (USDA) revealed that in 2012,

organic foods comprised of about 3.5% of total foods sales. While many Asian countries produce and export organic foods, their internal consumption may not be high as compared to the current global trend. Some studies opined that the percentage of organic to total food consumption in Asia would be around 1% or less. In contrast, the developed world is showing greater rise in internal demand. Asia, Latin America and South Africa are projected to have increasing demand for organic foods and beverages due to ever-expanding domestic organic production, growing public support for organic agriculture and implementing the initiatives for the development of organic standards and regulations. Therefore, it is essential that researchers explore what causes consumers' intention to purchase organic foods so that a managerial and policy direction may be provided in this regard.

Under Bangladesh context, only a few studies could be traced that systematically addressed this issue from an organized research perspective. Overall, studies under Asian context have been scant (Swidi *et al.*, 2014; Giovannucci, 2007). Therefore, the current study analyzes the past studies under Bangladesh context as well as

draws from other global studies to argue that there are areas which need further investigation under a solid theoretical framework. Specifically, the study is aimed at looking at the appropriateness of a behavioral model, i.e., the Theory of Planned Behavior (TPB) that has rarely been used by other researchers in the organic food behavior context in Bangladesh.

Therefore, the study is aimed at identifying and analyzing determinants of purchase intention of organic foods in Bangladesh by using the TPB as the research framework. In the process, it will also look into whether the framework may be used under Bangladesh context so that a baseline framework can be agreed upon for future studies.

Literature review: It was found that the studies on organic food purchase behavior or purchase intention under Bangladesh context have been scant. Extensive search showed about eleven studies that were published in journals or available as online resources. Among these eleven studies, only four studies investigated consumer issues, five investigated farmer issues and the rest are institutional reports. The following are the studies that investigated consumer issues under Bangladesh context: Mamoon and Haque (2013), Mukul *et al.* (2013), Sarker and Itohara (2008). The following analysis briefly reviews these studies and explores the potential research needs under Bangladesh context.

The study conducted by Mamoon and Haque (2013) highlighted development theme of cultivating organic food in Bangladesh. The study rightfully identified the need for government support in this sector in order to make farmers quickly adopt organic farming. The study also noted the city-based culture of organic consumerism in Bangladesh. However, the study is exploratory and qualitative in nature. No formal theoretical model was used in order to frame the investigation. Therefore, only some descriptive measurements were reported without any conclusive interpretation on consumers' purchase behavior. Another study by Mukul *et al.* (2013) also pointed towards the city-based organic food culture like the foregoing study and discussed similar issues. Although, city-based studies were not uncommon for investigating organic food related behavior in the Asian context (Kantatasiri *et al.*, 2014), these studies often lacked appropriate theoretical framework for statistical inferences. However, Mukul *et al.* (2013) adopted a formal research framework by measuring the predictors of organic food perception among consumers. It found that the nutrition content and low pesticide level were the significant predictors of organic food perceptions among consumers. Such findings that health related factors

primarily drive organic food consumption were also reported by other past studies (Kriwy and Mecking 2012; Cicek and Kartalkanat 2010). Other than measuring perception, no other behavioral model was mentioned for future reference in this study.

Other researchers highlighted both the demand and supply side of organic food sector (Sarker and Itohara, 2008). The study depended on field survey, using random sampling of farmers and consumers. Although the study followed a quantitative approach, descriptive design was followed rather than causal design. Similar to other studies, no particular research framework was followed in conducting the investigation. Another study by Rahman and coauthors is actually a short review study, looking at the general scenario of both the production and consumption pattern of organic foods in Bangladesh. The study followed a development approach and discussed how organic foods could contribute in various ways to our society and economy. However, since the study was of exploratory type, no inferential analysis was available supported by quantifiable information.

Based on the published literature under Bangladesh context, it appears that investigating purchase intention under a solid research framework is an urgent necessity. In addition to literature review under Bangladesh context, it is also important to highlight past studies in the organic food sector that employed causal design with behavioral framework. This would justify the use of the TPB as a framework of this study as well.

Since, it is already evident that no formal behavioral model has apparently been used or applied in studies under Bangladesh context, other past studies might be considered for finding a tentative model that could be used under both the Asian and global context. Literature survey revealed that many past studies used the theory of planned behavior, either partially or in full while explaining organic or conventional food purchase behavior (Aygen, 2012; Cho *et al.*, 2015; Smith and Paladino, 2010; Voon *et al.*, 2011). In most cases, purchase intention has been used as a proxy for actual behavior as proposed by Ajzen and Fishbein (2005). Other recent studies also validated model fits by using purchase intention as independent variable, using the theory of planned behavior (Shaharudin and Pani, 2010).

The TPB consists of attitude which has been an important construct in many behavioral studies. Attitude toward the behavior is defined as the extent to which a person has a favorable or unfavorable disposition or evaluation of a behavior (Ajzen, 1991). Past studies in organic food sector consistently reported significant influence of attitude on buying intention (Dean *et al.*, 2008; Leonidou *et al.*, 2010). Studies under Asian

context also confirmed the past finding that attitude towards organic foods had significant impact on purchase intention (Swidi *et al.*, 2014; Azam *et al.*, 2012; Sadati *et al.*, 2012). Therefore, a hypothesis may be drawn as “Attitude has significant positive influence on purchase intention” (H_1).

Another construct of the TPB, the Perceived Behavioral Control (PBC) is expected to capture the effect of non-volitional elements of a certain behavior where the individual feels that a behavior is within or not within his/her control (Ajzen, 1991). Many past studies found significant influence of PBC on purchase intention (Ling, 2013; Zhou, 2013). In contrast, other researchers contradicted such findings that PBC is not a significant determinant of purchase intention (Swidi *et al.*, 2014; Urban *et al.*, 2012). Therefore, PBC needs to be studied in this regard as contradictory results were found. The hypothesis can be stated as “Perceived Behavioral Control (PBC) has significant positive influence on purchase intention” (H_2).

Subjective Norm (SN), another salient construct of the TPB has been studied under food behavior context across the globe although, this has been scant under Asian perspective (Swidi *et al.*, 2014). Subjective norm refers to the perceived social pressure to perform or not to perform the behavior (Cialdini *et al.*, 1990). Many past studies found that subjective norm has significant influence on purchase intention (Aertsens and Verbeke, 2009). However, some studies reported weak or null impact of subjective norm on purchase intention (Tarkiainen and Sundqvist, 2005; Chen, 2007). Such conflicting results might be attributable to certain population characteristics where one variable was significant in a particular population and the same variable might not exhibit similar influences in another context. Therefore, subjective norm deserves to be studied further and a hypothesis can be drawn as “Subjective Norm (SN) has significant positive influence on purchase intention” (H_3).

In addition to evaluating the influences of attitude, subjective norm and perceived behavioral control on purchase intention, the current study attempts to provide empirical evidence whether the theory of planned behavior may be used for modeling the organic food purchase intention in Bangladesh. The model fit criteria was applied to see the fit of the structural model.

MATERIALS AND METHODS

This study deals with research framework, operationalization of constructs, sampling method and analysis techniques.

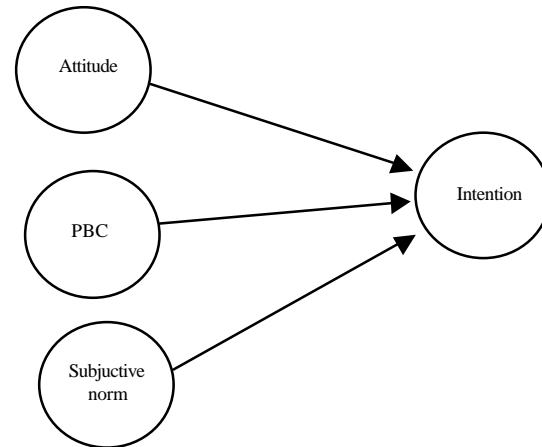


Fig. 1: Determinants of purchase Intention (the theory of planned behavior) (Ajzen, 1991)

Research framework: The study employs an empirical approach in looking into the influences of antecedents of purchase intention as espoused by the theory of planned behavior. At the same time, the study may also evaluate whether the TPB constructs can be employed in future research under Bangladesh context. The use of TPB as a model for investigating purchase intention in other countries is already documented in the foregoing literature review section. Figure 1 shows the graphical representation of the TPB, adopted as research framework for the current study.

Operationalization of constructs: The theory of planned behavior proposed that Behavior is determined by intention which in turn is determined by attitude, subjective norm and perceived behavioral control (Ajzen 1991). Therefore, there are four constructs that need to be defined before measurements and analysis can be done. All the constructs were measured in a 5-point likert scale, 1 being “strongly disagree” and 5 being “strongly agree”. Attitude toward the behavior means the degree to which a person has a favorable or not-so-favorable evaluation of a behavior (Ajzen, 1991). Attitude scale consists of 4 items, based on suggestions by Chen (2009) and Magnusson *et al.* (2003).

Another important factor that may affect intention is the Subjective Norm (SN) (Ajzen and Fishbein, 2005). Subjective norm refers to the perceived social pressure to perform or not to perform the behavior. Therefore, it would be operationalized by looking into how the society around customers influences their decision to purchase organic food products. Subjective norm was measured by a 3-item scale based on guidelines by Ajzen (2002).

The proponents of the theory of planned behavior also maintained that there could be certain factors that are beyond control of the decision maker, for which the customers' intention and behavior might be affected. The factors were collectively termed as Perceived Behavioral Control PBC (Ajzen, 2002). PBC was measured by a 4-item scale, also based on guidelines by Ajzen (2002). Finally, intention, defined as willingness to purchase in future was measured by a 3-item scale adopted from Chan (2001).

Sampling and data collection: The data requirement for the proposed model called for collecting primary data, therefore, field survey would be appropriate for first-hand data collection. The sampling unit is proposed to be the individual customers visiting stores intending to buy organic foods, namely organic meat, vegetables, fruits, rice and tea. The survey took place in August, 2015. Mall-intercept surveys were conducted in a systematic random way since the sampling frame was not readily available. The survey was conducted in Dhaka, the Capital of Bangladesh, since about 95% of the formal and national organic stores are located here.

Another issue would be of determining appropriate sample size. There are many approaches towards determining the required sample size. The current study followed the recommendation of Marcoulides and Saunders (2006) that a sample size of 98 would be sufficient for a structural equation model that consists of loadings equal or greater than 0.6 when establishing correlations ≥ 0.4 . Taking this number as a minimum requirement, the current study used 154 samples after screening for incomplete, missing and suspicious answers. Therefore, the sample size appears to be adequate.

Analysis tools: Once responses were screened for missing values, incomplete answers and outliers, composite reliabilities were checked for internal consistency. Partial Least Square Structural Equation Modeling (PLS-SEM) was applied to see the model fit and significance of factors behind purchase intention. The analysis was done in two steps: first, to evaluate the outer model and second, to examine the inner or structural model (Anderson and Gerbing, 1988). Smart PLS3 was used for analyzing the collected data.

RESULTS AND DISCUSSION

This study elaborates on the outcome of data analysis.

Demographic background of respondents: Table 1 shows the demographic background of respondents. From demographic profile, it appears that most consumers

Table 1: Demographic background of respondents

Demographic measures	Frequency	Percentage	Cumulative (%)
Age			
18-25	21	13.6	13.6
26-35	33	21.4	35.1
36-45	53	34.4	69.5
46-55	29	18.8	88.3
56-65	14	9.1	97.4
65+	04	2.6	100.0
Gender			
Male	71	46.1	46.1
Female	83	53.9	100.0
Income*(in BDT)			
Below 25,000	9	5.8	5.8
25,001-35,000	20	13.0	18.8
35,001-45,000	35	22.7	41.6
45,001-55,000	51	33.1	74.7
55,001-65,000	32	20.8	95.5
65,000+	7	4.5	100.0
Education			
Primary	1	0.6	0.6
SSC	7	4.5	5.2
HSC	35	22.7	27.9
Bachelor	74	48.1	76.0
Postgraduate	37	24.0	100.0
Marital status			
Single	52	33.8	33.8
Married	102	66.2	100.0

BDT = US\$ 0.0128 (Feb 01, 2016)

Table 2: Internal consistency of measurements

Variable	Items	Composite reliability	Cronbach α
Attitude	4	0.838	0.747
Intention	3	0.833	0.717
PBC	4	0.884	0.848
Sub. Norm	3	0.865	0.775

belong to 36–45 age range. The sample was slightly biased towards female respondents which has been a common characteristic of grocery shopping in many countries. There were more respondents from upper income and education groups which has been consistent with findings in other countries (Pereira *et al.*, 2015). About two-third of the respondents were married. Next, the following section elaborates on the measurement or outer model.

Measurement model: Table 2 reports measures of internal consistency. Traditionally, Cronbach α has been used to measure internal consistency. However, it is recommended for PLS-SEM analysis that composite reliability be reported (Garson, 2016). Therefore, both the measures are reported.

It is recommended that composite reliabilities be within a value ranging from 0.60-0.80 (Chin, 1998) whereas Cronbach α should be 0.70 or more (Nunnally and Bernstein, 1994). Since, all the constructs showed composite reliabilities and Cronbach alpha values above the lower cut-off limit, internal consistency is established.

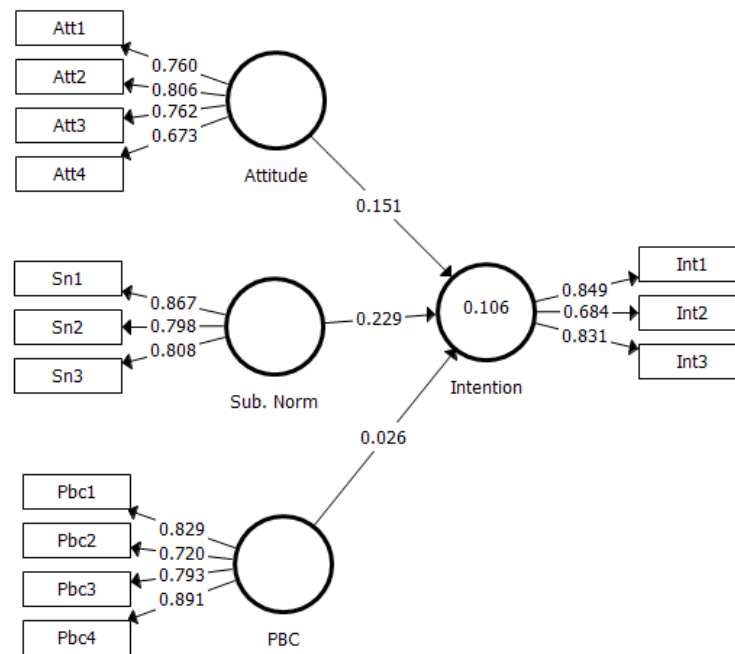
Fig. 2: Outer loadings, path coefficients and R^2

Figure 2 shows outer loadings, path coefficients and R^2 . Table 3 shows measures of convergent validity, particularly important are the measures of Average Variance Extracted (AVE). For outer loadings, a minimum value of 0.60 is recommended where 0.70 would be ideal, accounting for 50% or more of the variance of the underlying latent variable (Chin, 1998). Table 3 shows that outer loading are all above 0.60 and most of them are above 0.70. An examination of AVE also shows that all values are above the cut-off point of 0.50. Based on these evaluations, the measurement model exhibits sufficient convergent validity.

Next, Table 4 summarizes discriminant validity measures based on recommendations by Fornell and Larcker (1981). Table 4 shows that the square-roots of AVEs are greater than the off-diagonal elements (correlations) in their corresponding rows and columns. This suggests that the required discriminant validity is achieved (Fornell and Larcker, 1981).

Structural model: Based on the two-step approach of PLS analysis, the structural model is analyzed after evaluating the measurement model. Before assessing the structural model, researchers suggested that multicollinearity should be checked where VIF (variance inflation factor) value over 4 may indicate multicollinearity (Garson, 2016). Table 5 shows VIF values for the structural model.

Table 3: Factor loadings and AVE

Construct	Items	Factor loading	AVE
Attitude	Att1	0.760	0.566
	Att2	0.806	
	Att3	0.762	
	Att4	0.673	
Intention	Int1	0.849	0.627
	Int2	0.684	
	Int3	0.831	
Perceived Behavioral Control (PBC)	Pbc1	0.829	0.657
	Pbc2	0.720	
	Pbc3	0.793	
	Pbc4	0.891	
Subjective Norm (SN)	Sn1	0.867	0.681
	Sn2	0.798	
	Sn3	0.808	

Table 4: Discriminant validity (Fornell and Larcker criteria)

Constructs	1	2	3	4
Attitude	0.752			
Intention	0.242	0.792		
PBC	0.134	0.104	0.811	
Sub. norm	0.381	0.293	0.251	0.825

Figures in the diagonal show square-root of AVE

Table 5: Collinearity statistic (VIF)

(Inner VIF values)	Intention
Attitude	1.172
PBC	1.069
Sub. norm	1.229

Since, all the VIF values are below the cut-off point, multicollinearity at the structural level may not exist. Next, in order to show how well the data supported the hypothesized relationship, the R^2 and the path

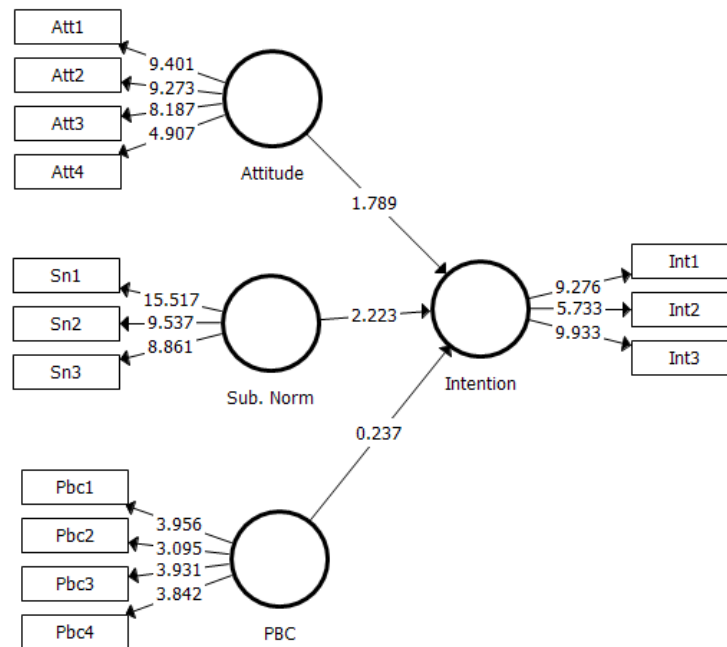


Fig. 3: Structural model (t-values for indicator and path coefficients)

Table 6: Path coefficients and significance

Path	Original sample (O)	Sample mean (M)	Standard Deviation (STDEV)	t-statistics* (O/STDEV)	p-values	Decision ($\alpha = 0.05$, 1-tailed)
Attitude→Intention	0.151	0.167	0.085	1.776	0.037	H ₁ : S
PBC→Intention	0.026	0.047	0.110	0.234	0.406	H ₂ : NS
SubNorm→Intention	0.229	0.232	0.103	2.223	0.013	H ₃ : S

*Critical t-value is 1.65 for one-tail significance test at $\alpha = 0.05$

coefficients would be evaluated (Chin, 1998). Bootstrapping method was applied by generating 5,000 samples to estimate the path significance. The path coefficients and t-values are shown in Table 6 and t-values are also shown in the path model in Fig. 3.

At this stage, it is needed to check specific hypothesis to evaluate the effect of all the variables in the model. Table 6 shows path coefficients and t-statistic to evaluate the hypothesis as proposed. It shows that attitude and subjective norm have significant effect on purchase intention whereas perceived behavioral control does not exert significant influence. Therefore, H₁ and H₃ are supported and not H₂. Looking at beta values, it appears that subjective norm has a higher degree of influence on intention than that of attitude. The results are interpreted in the following section.

PLS path algorithm result (Fig. 2) shows that R² is 0.106 with a p-value of 0.008 which has been significant. Chin (1998) proposed that results above the cutoffs 0.67, 0.33 and 0.19 may be considered as substantial, moderate and weak, respectively. Based on these guidelines, the R² coefficients for this model may be considered weak. In fact, many scholars argued that low R² is expected in

models that deal with predicting or modeling human behavior (Chatterjee *et al.*, 2014). Therefore, it may not be the low R² that researchers need to be concerned but to evaluate whether valid constructs are modeled in a relationship that has significant role in explaining the variability in the intention or behavior. Thus, a low R² with a good model fit would be meaningful and interpretable.

In its latest release, Smart PLS3 included a criterion to evaluate the approximate model fit. The model fit may be evaluated by using SRMR (Standardized root mean square residual) value from bootstrapped results. Although, a value of 0 would indicate a perfect fit, a cut-off value of 0.08 is proposed by Hu and Bentler (1999) that may be applied while evaluating the model as specified. Bootstrap output showed the SRMR value of 0.051 ($p = 0.000$) which is below the cut-off value of 0.08. Therefore, the model fit is exhibited.

CONCLUSION

The study is aimed at investigating the determinants of purchase intention of organic foods in Bangladesh,

under the common baseline framework of TPB. Though a good linear fit was found, perceived behavioral control was not significant. In fact, the results were not unusual for organic food behavior studies. Similar results were reported by past researchers that PBC might not be significant for organic food consumers (Tarkiainen and Sundqvist, 2005). Other researchers also reported that perceived behavioral control does not significantly affect purchase intention of organic foods (Urban *et al.*, 2012). According to Ajzen and Fishbein (2005), researchers may find that some variables could be insignificant in a particular sample, however that does not necessarily mean that the model is invalid. This phenomenon could be the feature of the sample concerned in a particular situational context. Therefore such results may represent the scenario that may be valid to that cross-sectional survey. However, further studies on the influence of perceived behavioral control is warranted in future studies in order to validate such findings.

From managerial point of view, marketers may design strategies and marketing communication targeting consumer attitude and social norm. Consistent with past studies that attitude may have significant impact on the purchase intention in many situations (Ajzen and Fishbein, 2005), it is worth mentioning that organic food consumers may be showing such an underlying attitude-intention relationship as evident from the current analysis. Therefore, managers might keep this in mind while setting priorities for positioning and designing marketing communication. In addition, it is expected that the model may further be used with modifications by identifying and including more explanatory variables that might better explain the variance in purchase intention.

Some limitations of the study may also be noted at this point. The study is confined to identifying the influence of determinants of purchase intention under Bangladesh context only. Therefore, geographical context may limit the generalizability of the study across other countries. In addition, the study covers consumers who buy organic foods from stores that self-declare organic status at the national level. Since, there is no national certification program to certify organic foods, it is assumed that consumers treat such products as organic, irrespective of certification or accreditation. The study is confined in the city of Dhaka, the capital of Bangladesh. The city is chosen as the majority of branded organic food retailers are based in Dhaka. Therefore, it may not be representative of rural consumers.

RECOMMENDATIONS

Based on the studies published so far as well as the empirical findings of this study, the following research

areas may be addressed in future investigations under Bangladesh context.

It was found that majority of studies were of exploratory in nature, resulting in descriptive results without any inferential analysis. Therefore, further causal study may be adopted in future to identify more variables that may contribute towards explaining the variation in purchase intention. For example, ease of access, affordability and availability could be studied under Bangladesh context as many respondents verbally indicated during the interview process.

As already noted, further research may be conducted to find the influence of perceived behavioral control on purchase intention. Future studies may investigate the role of perceived behavioral control in buying organic foods in Bangladesh. Further evaluation of results showed that despite a weak R^2 , the results were significant and interpretable. It indicates that attitude and subjective norm significantly account for variation in purchase intention, although these are probably not the only salient variables. There might be more underlying predictors beyond attitude and subjective norm in a nascent organic market in Bangladesh. Results also indicate that the TPB may be adopted as a basic model in developing more enhanced research framework in future. As an indication to prospective research approach, it may be recommended that qualitative exploration be taken with quantitative studies so that potential explanatory variables can be identified and studied in future.

It may be apparent that organic foods might confer multiple promises for Bangladesh as well as for the globe at large. Environmental and health benefits would be of major concern for a developing country like Bangladesh. However, the small adoption rate in developing countries including Bangladesh has been a common trend. Therefore, in order to provide immense insights both to the managers and policy makers, the behavioral aspect of organic foods may be investigated further in this sector.

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